

Design Concepts – Water-Quality Aspects of Water-Distribution Model Applications in Panama

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Biographical Sketches of Authors

Mr. Amaya has served 22 years as a Project Engineer; currently is part of the potable water and sanitation office at the Ente Regulador de los Servicios Públicos (ERSP) which is in charge of the water quality program in urban areas. Previously, he worked 16 years at the Instituto de Acueductos y Alcantarillados Nacionales (IDAA), the main water provider in Panama. He served as technical coordinator for the SVCAPU (Sistema de Vihilancia de la Calidad del Agua Potable Urbano) project, funded by The World Bank and results from which were used herein.

Mr. Barrios has worked 5 years as an international consultant for water-quality management and contamination control. He has been involved with water quality management projects in Cambodia, Thailand, Laos and Vietnam, and Mexico and Central America. Previously, he served as Project Manager of the national water-quality monitoring network of the National Water Commission in Mexico, and was affiliated with the water research group at the Institute of Engineering, from the National University of Mexico (UNAM).

Over 24 of the past 38 years of his professional career, Dr. Steele has consulted on projects dealing with design/evaluation of hydrologic monitoring networks, statistical analysis of hydrologic data, stream/subsurface modeling, use-attainability analyses, stream standards, total maximum daily loads assessments, regional ground-water planning, and international water-resources planning and management. His career includes overseas experience in eleven foreign countries and recently includes teaching short courses at two German universities.

Mr. Gomez is a Project Engineer with the Ente Regulador de los Servicios Públicos (ERSP) and assisted Engineer Amaya and the TDS project staff in several aspects of the SVCAPU project.

Mr. Tapia is an independent Engineering Consultant in Mexico and provided the water-distribution model (EPANET and WaterCAD) expertise required for the SVCPU project.

Abstract

A conceptual design of elements of a water-quality monitoring program applicable to potable-water systems in Panama has been developed through a contract with the Republic of Panama's Ministry of Economics and Finance (MEF) and funded by The World Bank. Monitoring aspects (site selection, scheduling, and constituents of concern) are delineated for each of the five component subsystems: source areas (generally watersheds, but also springs and groundwater); intake and initial system conveyance; water-treatment plants; storage facilities (tanks/reservoirs) and distribution pipelines; and end-users (water taps). The primary regulatory agency in the Republic of Panama is the ERSP; however, participation by and collaboration with other governmental agencies (Ministry of Health and Ministry of Environment) as well as the Panama Canal Authority (ACP) is necessary. Critical aspects of program implementation include capacity building (human resources and technical support), training, configuration of each potable-water system, development and maintenance of a water-quality database, and a range of program information products. Eventual application is intended for the more than 130 municipal systems operated by the Instituto de Acueductos y Alcantarillados Nacionales (IDAA) or private-sector water providers in Panama. However, over the near term, a strategy for human-health ranking or risk is advocated to aid in prioritization of water-system monitoring and modeling.